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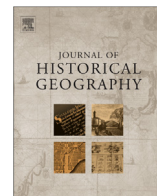
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Feature: European Geographers and World War II

Soviet geographers and the Great Patriotic War, 1941–1945: Lev Berg and Andrei Grigor'ev

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Abstract

The significance of the Second World War for Soviet geography was somewhat different from that in much of the West. In the USSR, as a result of the 1917 Russian Revolution and, more particularly, of Joseph Stalin's 'Great Turn' implemented in 1929–1933, geographers were faced with pronounced political and economic challenges of a kind which arguably only confronted most Western geographers with the onset of war. It is therefore impossible to understand the impact of the war for Soviet geography without taking into account this broader context, including events during the turbulent post-war years. The paper will focus on the experiences of two prominent geographers who played a major role in the developments of the era including their responses to the revolutionary circumstances occurring from the late 1920s, their activities and experiences during the war, and the debates and conflicts they engaged in during the post-war crisis. Some of the more significant contrasts with geographical developments in Western countries during these years will be emphasized.

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Keywords: Soviet geography; Andrei Grigor'ev; Lev Berg; USSR Academy of Sciences Institute of Geography; Stalin era

Towards the end of January, 1947, just three years after the lifting of the German blockade of the city by Soviet forces, some 600 or so geographers and other delegates, plus guests, gathered in Lenin-grad for the Second All-Union Geographical Congress. Surprisingly enough, in view of their recent experiences of war, the Congress delegates seem to have had relatively little to say about the war itself, at least if the published Congress reports are anything to go by.¹ However, one senior delegate, namely Academician Andrei Grigor'ev, Director of the USSR Academy of Sciences Institute of Geography (IGAN), did so indirectly in his presentation entitled 'The contemporary tasks of Soviet geography'.² On page 124 of his report, Grigor'ev refers to the now much-cited paper by Edward Ackerman, 'Geographic training, wartime research, and immediate professional objectives' which had been published in the *Annals of the Association of American Geographers* for 1945.³ As is well known, in this paper Ackerman dwelt on the wartime experiences of US

geographers, especially those working in the Office of Strategic Services (OSS) in Washington DC. According to Ackerman, 'Wartime experience has highlighted a number of flaws in theoretical approach and in past methods of training men (sic) for the profession'.⁴ Among those flaws, Ackerman pointed in particular to US geographers' unfamiliarity with foreign geographical literature, an almost universal ignorance of foreign languages, bibliographic ineptness, a general lack of systematic specialisms, and their focus on a regional geographical method which emphasized an unscientific holism. By contrast, argued Grigor'ev, it is these very problems with which Soviet geographers had been grappling for the previous fifteen years. In his view, the Soviet adoption of dialectical materialism had led to a systematic study of the earth's many environmental and social processes and to a scientific emphasis on the 'dynamic development of individual territories and of the earth as a whole'.⁵ Had they known of this claim, Western geographers

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¹ *Trudy Vtorogo Geograficheskogo s'ezda*, Vols. 1–2, Moscow, 1948.

² A.A. Grigor'ev, *Sovremennye zadachi Sovetskoi geografii*, *Trudy Vtorogo s'ezda*, Vol. 1, 122–134.

³ E.A. Ackerman, Geographic training, wartime research, and immediate professional objectives, *Annals of the Association of American Geographers* 35 (1945) 121–143.

⁴ Ackerman, Geographic training (note 3), 122.

⁵ Grigor'ev, *Sovremennye* (note 2), 125.

would no doubt have been tempted to dismiss it as an example of crude, Cold War propaganda. Part of the purpose of this paper is to examine the validity of Grigor'ev's assertion.

Ackerman's paper has also been cited by Trevor Barnes in the latter's much more recent work on American geographers' wartime experiences in the OSS, using a variety of sources.⁶ Barnes' thesis is that American geography was ultimately changed by the experience of war: 'Approaches to war now shaped geographical thought'.⁷ Many of the wartime deficiencies identified by Ackerman, deficiencies particularly pertaining to the human side of the discipline, were eventually met, if not always resolved, by geographers adopting the more rigorous and scientific methodologies recommended in Ackerman's paper. In time this helped give rise to the Quantitative Revolution. Again, in discussing the wartime work and experiences of Soviet geographers, the paper will query the extent to which Barnes' thesis might also be said to apply to the USSR.

This paper is informed by a variety of recent literature. In particular, the broad literature on the history, sociology and geographies of science is important as underlining one of the central points of this paper, which is that the development of science, rather than being *sui generis*, is in fact very much shaped by the social, political and cultural context in which it occurs.⁸ That being the case, the development of geography in Russia and the USSR, and the effects of the war on that development, are unlikely to have been the same as in the USA.⁹ Also important for this paper is the recent literature on Stalinism and, in particular, on the relationship between science and politics under Stalin.¹⁰ Here the key point is that an earlier generation of Western scholars, hampered by a lack of access to Soviet sources, and no doubt often influenced by Cold War attitudes, tended to stress the sharp differences between the comparative freedom of Western scientists operating in 'democratic' societies, and the lack of freedom of Soviet scientists subject to 'totalitarian' controls and political diktat. By contrast, more recent scholarship has stressed the often subtle and two-way relationship which existed between Soviet scientists and the Stalinist state, with the former often seeking patrons among Party and state officials, and political ideology being a flexible rather than rigid instrument of control. In this way, and following Kremontsov, we might say that the development of Soviet geography, whilst perhaps appearing 'strange' by Western standards, was by no means entirely alien to geography's development in the West.¹¹

In order to open up the experiences of Soviet geographers during the Second World War, the paper focuses in particular on the activities of two influential Soviet geographers, the aforementioned Andrei Grigor'ev, and one of his main professional rivals, Lev Berg. Both geographers played key roles in the intellectual and institutional development of Soviet geography and an overview of their respective contributions is provided below. More specifically, the often antagonistic relationship between the two academics and

their differing experiences during the war years provide us with an opportunity to assess, at least in part, the nature of the war's influence on the method and practice of Soviet geography.

This paper is based partly on the published books and periodical literature produced by Soviet geographers during the period between the early 1930s and the early 1950s (coinciding largely with the Stalin era), supplemented by more recent research by Russian scholars. The present writers have undertaken some work in Russian archives, which are generally more accessible than they were in Soviet times (though military archives remain difficult to access) but are conscious of the fact that much more remains to be done before a full picture of the wartime activities of the Soviet geographers and their consequences can be painted.

Geography in Russia and the USSR: pre-war developments

In keeping with the general thesis that science has the potential to develop differently in different places, something must be said about the particularities of geography's development in Russia and the USSR before an account of the wartime experiences of Soviet geographers can be given.

Professional geography in Russia can be said to date from 1884 when a government decree ordered geography departments or chairs (*kafedry*) to be established in the Russian universities. Over the next few years a series of departments appeared, often led by scholars trained in the natural sciences. The developing character of geography in Russia was shaped not only by German and European influences but also by Russia's own geographical tradition which arguably reached back to the founding of the Academy of Sciences by Peter the Great in 1725.¹² The Academy's expeditionary work, supplemented by that of other government and scientific bodies like the Russian Geographical Society established in 1845, was designed to explore, survey and map the remote corners of the Russian empire, and to record the natural resources to be found there. This helped endow Russian geography with at least three specific characteristics as it began to emerge from the 1880s: an emphasis on fieldwork and exploration, a bias towards the physical rather than the human side of the discipline (and consequently geography's growing proximity to cognate sciences like geology, soil science and meteorology), and the significant role played by the state as reflected in the importance frequently (but not always) accorded to the applied and policy-oriented aspects of research.

The importance of the state to Russian science (and to other areas of Russian life) no doubt reflected in part an official consciousness of Russian backwardness relative to other European states and a general determination from the time of Peter to speed Russian development along European lines. It was also related to the sheer size of the Russian empire and the state's need for detailed knowledge of its territory. Strategic concerns were to the fore with the establishment in 1915, under the auspices of the

⁶ T.J. Barnes, Geographical intelligence: American geographers and research and analysis in the Office of Strategic Services, 1941–45, *Journal of Historical Geography* 32 (2006) 149–168.

⁷ Barnes, Geographical intelligence (note 6), 163.

⁸ See, for example, T.S. Kuhn, *The Structure of Scientific Revolutions*, Chicago, enlarged edition 1970; D.N. Livingstone, *The Geographical Tradition: Episodes in the History of a Contested Enterprise*, Oxford, 1992, especially 1–31; J. Golinski, *Making Natural Knowledge: Constructivism and the History of Science*, Cambridge, 1998; D.N. Livingstone, *Putting Science in its Place: Geographies of Scientific Knowledge*, Chicago, 2003.

⁹ For a discussion of the Russian and Soviet case, see L. Mazurkiewicz, *Human Geography in Eastern Europe and the Former Soviet Union*, London, 1992.

¹⁰ See, for example: L. Graham, *Science in Russia and the Soviet Union*, Cambridge, 1993; D.R. Weiner, *A Little Corner of Freedom: Russian Nature Protection from Stalin to Gorbachev*, Berkeley, 1999; N. Kremontsov, *Stalinist Science*, Princeton, 1997; E. Pollock, *Stalin and the Soviet Science Wars*, Princeton, 2006; A. Kojevnikov, The phenomenon of Soviet science, *Osiris* 23 (2008) 115–135; S.G. Solomon, Circulation of knowledge and the Russian locale, *Kritika* 9 (2008) 9–26.

¹¹ Kremontsov, *Stalinist Science* (note 10), 287.

¹² D.J.M. Hooson, The development of geography in pre-Soviet Russia, *Annals of the Association of American Geographers* 58 (1968) 250–272; Mazurkiewicz, *Human* (note 9), 15–35; D.J.B. Shaw, Geographical practice and its significance in Peter the Great's Russia, *Journal of Historical Geography* 22 (1996) 160–176.

Academy of Sciences, of the Commission for the Study of Natural Productive Forces (KEPS) with a brief to engage in the systematic survey of the country's resource base as a wartime defensive measure.¹³ KEPS had a positive impact on the status of pre-revolutionary professional geography and would go on to facilitate the institutional advancement of the discipline during the early Soviet period. The commission was chaired by the eminent mineralogist and biogeochemist, V.I. Vernadskii, who was close to the geographers, and several geographers served as members, including both Berg and Grigor'ev. This wartime experience furnished the geographers with an appreciation of how their skills might be used for military ends. As Grigor'ev's recent biographer, T.D. Aleksandrova, has written: '[Grigor'ev] often said that war did not find the geographers unprepared. Undoubtedly, there spoke his experience in the 1914–1918 war in the KEPS commission'.¹⁴ Furthermore, it provided the basis for purposeful collaboration between the state and natural scientists in areas of natural resource exploration, assessment and evaluation, which would continue, in various guises, until the Second World War. The resulting expertise and systems of operation would prove invaluable during the early years of the War as the Soviet economy reordered itself in response to the German invasion.

The Bolshevik seizure of power in November 1917 naturally changed the entire political context within which the geographers and other scientists operated, though the impact on science was not immediate. The Bolsheviks were modernizers, quickly recognizing the importance of science and their dependence on scientists educated under the old regime. The scientists were soon benefitting in consequence. In geography, for example, the new government established a specialized Geographical Institute in Petrograd/Leningrad (in 1918), whose second rector was the prominent mineralogist A.E. Fersman (a secretary of KEPS from 1915).¹⁵ Its major purpose was to train specialized geographers and to expand expeditionary and survey work in science.¹⁶ In 1925 the institute was transformed into the Geography Faculty of Leningrad State University. Meanwhile, and reflecting the Bolshevik emphasis on applied science in general, many new scientific research institutes were established in universities, government ministries and other organizations.

Until the late 1920s Soviet science remained a modified version of pre-1917 science, but now fully dependent on state resourcing with the abolition of private funding (and in that sense 'nationalized'). It also remained open to foreign, especially German, influences.¹⁷ The First World War and the new priorities of the Soviet regime had led to a renewed emphasis on the applied nature of Soviet geography, but had not changed its essential nature.¹⁸ All this was to change fundamentally in the next few years. Over the period between 1929 and the mid-1930s Joseph Stalin, who had by now fully consolidated his dictatorship over the Communist Party and over society as a whole, inaugurated what became known as 'The

Great Turn' involving the complete centralization of economic activity in the command economy, the collectivization of agriculture, and a thoroughgoing cultural revolution. For science the changes were profound. Essentially, in Kremmentsov's words, as a result of the 'Great Turn', 'Stalinist science [became] Big Science, a gigantic centralized system with thousands of institutions and hundreds of thousands of scientists' – in fact the world's first example of Big Science, centrally funded and politically controlled, oriented towards the government's priorities, and subject to planning like the rest of the economy.¹⁹ In other words, whilst the First World War and the Revolution had merely placed new emphasis on geography's applied side, science now became central to the Bolsheviks' determination to build a new, socialist society. In the mid-1930s Stalin unleashed the Great Terror, directed at those who failed to conform or who fell out of favour for one reason or another. In the purged institutions (which included the Academy of Sciences, especially after 1929) many scientists were demoted or sacked, many arrested, and many disappeared into the camps. Among the geographers and their associates the most prominent victim was the major geneticist Nikolai Vavilov, friend of Berg and president of the Geographical Society between 1931 and 1940.²⁰ Vavilov was arrested in 1940 as a result of his rivalry with the scientific fraudster, Trofim Lysenko, and perished in prison in Saratov in 1943.

Geography, of course, was very much affected by these events. Thus geographers were now ordered to conform to official requirements in teaching and research and to direct their activities towards applied science.²¹ However, after the 'Great Turn', universities were to be primarily responsible for teaching whilst much research was henceforth to be undertaken by more specialized bodies, particularly the Academy of Sciences. On the basis of the practical significance and achievements of KEPS during the First World War, the Academy was able to argue for the establishment of a series of specialized research institutes devoted to working for Soviet development. Among these was the Institute of Geography. However, since the evolution of this institute was very much bound up with the career of Andrei Grigor'ev, its consideration will be left to the next section.

It is important to stress, therefore, that pressures on Soviet geographers to demonstrate their scientific rigour and ability to contribute to national goals long predated the war. As a result of the Revolution and especially of Stalin's 'Great Turn', the entire context in which Soviet geographers operated was very different from that in the West. Indeed, since the Soviet command economy has often been compared to the wartime economies of Western capitalist states, it could be asserted that, in the 1930s, Soviet geographers found themselves plunged into what amounted to wartime emergency conditions long before the war itself broke out.²²

¹³ See A.V. Kol'tsov, *Sozdanie i deiatel'nosti Komissii po izucheniiu estestvennykh proizvoditel'nykh sil Rossii, 1915–1930*, St Petersburg, 1999; A. Kojevnikov, The Great War, the Russian Civil War, and the invention of Big Science, *Science in Context* 15 (2002) 239–275.

¹⁴ T.D. Aleksandrova, *Akademik Andrei Aleksandrovich Grigor'ev: zhizn' i nauchnoe tvorchestvo*, Moscow, 2011, 217.

¹⁵ *Otchet o deiatel'nosti Komissii po izucheniiu estestvennykh proizvoditel'nykh sil Rossii sostoiashchei pri Imperatorskoi Akademii nauk za 1916 god*, Petrograd, 1917, 35.

¹⁶ *Geograficheskii Institut. Geografiia, ee prakticheskie zadach i znachenie dlia gosudarstvennogo stroitel'stva*, Petrograd, 1922.

¹⁷ Kremmentsov, *Stalinist Science* (note 10), 13–30.

¹⁸ For more on how Soviet science changed after 1917, see: L.R. Graham, The formation of Soviet research institutes: a combination of revolutionary innovation and international borrowing, *Social Studies of Science* 5 (1975) 303–329; M.B. Adams, Science, ideology and structure, the Kol'tsov Institute, 1900–1970, in: L.L. Lubrano, S.G. Solomon (Eds.), *The Social Context of Soviet Science*, Boulder, 1980, 173–204.

¹⁹ Kremmentsov, *Stalinist Science* (note 10), 3.

²⁰ See Kremmentsov, *Stalinist Science* (note 10); D. Joravsky, *The Lysenko Affair*, New York, 1970; P. Pringle, *The Murder of Nikolai Vavilov*, New York, 2008; V.D. Esakov, *Nikolai Ivanovich Vavilov: stranitsy biografii*, Moscow, 2008.

²¹ L.S. Berg, *Dostizheniia Sovetskoi geografii (1917–1947)*, Leningrad, 1948. Although not specifically discussed by Berg, geographers in the 1930s served on the State Planning Committee (GOSPLAN), the Committee for the Investigation of the Productive Forces of the USSR (SOPS), and on other major state planning bodies.

²² See, for example, A. Nove, *The Soviet Economic System*, London, 1977, 365.

Lev Berg, Andrei Grigor'ev and pre-war theoretical debates in geography

Lev Berg and Andrei Grigor'ev, the two geographers who form the focus of this study, were central to geographical developments in the Stalin period. In order to understand the significance of their activities during the war and its aftermath, it is important to say something about their backgrounds and the pre-war debates in which they participated.

Lev Semenovich Berg (1876–1950) was born in the city of Bendery in present-day Moldova, the son of a Jewish notary. In 1894 he was admitted to Moscow University where he gravitated towards zoology and geography. After graduation he studied the lakes and rivers of Central Asia and was awarded a doctorate on account of his 1908 dissertation on the Aral Sea. In 1916 Berg took the post of professor at Petrograd (formerly St Petersburg) University and later at the Geographical Institute. In view of his numerous, well-received publications and other activities, he received many honours and, in 1928, was elected a corresponding member of the Academy of Sciences (he became a full member in 1946). In 1940, Berg was elected to succeed the recently-arrested Nikolai Vavilov as president of the All-Union Geographical Society, a position he held until his death in 1950.

Andrei Aleksandrovich Grigor'ev (1883–1968) was born in St Petersburg, the son of an army officer. Entering St Petersburg University, he later studied in Berlin and then Heidelberg where he participated in Alfred Hettner's geography seminar. Awarded a doctorate in Heidelberg, Grigor'ev returned to Russia, working for a period for the Brokgauz and Efron encyclopedia. He then joined KEPS and rose to head its geographical section. In 1930 this section became the Geomorphological Institute which eventually became the Institute of Geography (IGAN) in Moscow in 1936 with Grigor'ev as director. Grigor'ev was elected a full member of the Academy of Sciences in 1939 and remained director of IGAN until 1951. As a fully-fledged institute of the Academy of Sciences, IGAN became the USSR's principal geographical research institution and was destined to play a leading role in the wartime activities of the geographers.

One significant difference between the contexts in which Soviet and US geographers worked in the 1930s and 1940s was the former's need to pay heed to the prevailing political ideology (although the era of McCarthyism in the late 1940s may have had an analogous effect in the case of the US geographers).²³ In the USSR ideology stimulated lively debates across the sciences in this period. In geography the debates focused around the opposed views of Berg and Grigor'ev regarding the essence and purpose of geography, particularly physical geography. As shall be seen, both positions were bound up with issues of practicality as well as ideological rectitude.²⁴

Lev Berg's view of geography was first propounded in 1913 and 1915. For Berg, geography should be focused on the study of landscapes, naturally occurring biophysical units into which the earth's surface is subdivided and which might easily be discovered in the field. Here Berg seems to have been influenced by the Russian soil science school of V.V. Dokuchaev (1846–1903). However, in his paper of 1915, Berg also claimed a link to the ideas of the respected

German geographer, Alfred Hettner (1859–1941). The latter's neo-Kantian concept of geography emphasized its chorological character, and his major work, *Geography: its history, substance and methods*, was republished in the USSR as late as 1930.²⁵ For Berg, the major advantage of Hettner's view was that it endowed geography with its own unique object of study, namely the region or place. In addition, Berg also claimed the practical usefulness of the landscape approach. Thus, the first edition of his *Landscape-geographical zones of the USSR* was published in 1930 by N.I. Vavilov's All-Union Institute of Plant Breeding which was dedicated to the breeding of high-yielding, disease-resistant crops for agriculture. In the view of Vavilov, Berg's comprehensive, geographical study of the USSR's natural zones (biomes) facilitated exactly that end.

Unfortunately for Berg, however, by the 1930s Hettner was coming under increasing political attack. He was seen as an anti-Marxist and, moreover, suspicious foreign scholar whose chorological concept of geography was not only unscientific and particularistic but abetted notions of environmental determinism. Indeed the sin of 'Hettnerism' was soon being used by Stalinist geographers as a sinister epithet with which to tar their opponents. And one of the leading champions of the anti-Hettnerite camp was Andrei Grigor'ev. Grigor'ev, as mentioned above, was a former student of Hettner, but from the late 1920s, whilst still working for KEPS, he distanced himself more and more from Hettner's ideas and migrated from economic (human) into physical geography. From the early 1930s, Grigor'ev began to advocate what he termed a new approach to geography based on the concept of 'the single physical-geographical process',²⁶ a rival to landscape geography. Grigor'ev believed that this approach was not only consonant with the dynamic principles of dialectical materialism, but, focused on process rather than on the relatively static and conservative concept of landscape, was more relevant to the growing official emphasis on industrialization and nature transformation. Like Berg, then, Grigor'ev strove to position geography as an essentially practical science even prior to the demands of the war, influenced both by the radical state policies of the 1930s and by longer-term trends linked to the strategic development of the country's natural resources.

Soviet geographers in the Great Patriotic War

In an article, 'Geography in the service of the war', written in 1942, A.E. Fersman argued that the war had led to a re-evaluation of the importance of several of the sciences, including geography.²⁷ According to Fersman, who was clearly trying to boost the wartime significance of those sciences falling within his purview, geography, which before the war had often been regarded as a second-order, descriptive discipline, now ranked among the sciences playing a primary role in the solution of 'the most important and most difficult problems of the world conflict'. Fersman argued that this re-evaluation had occurred for two reasons: firstly because geography had now become a science of interconnections, including those between society and nature, a knowledge of which was vital in the evaluation of all the complexities of battlefield conditions. The second reason was that geography was the science dealing with

²³ See D. Harvey, Owen Lattimore: a memoir, *Antipode* 15 (1983) 3–11. We are grateful to Trevor Barnes for this reference.

²⁴ For more details, see D.J.B. Shaw and J.D. Oldfield, Landscape science: a Russian geographical tradition, *Annals of the Association of American Geographers* 97 (2007) 111–126; D.J.B. Shaw and J.D. Oldfield, Totalitarianism and geography: L. S. Berg and the defence of an academic discipline in the age of Stalin, *Political Geography* 27 (2008) 96–112; D.J.B. Shaw and J.D. Oldfield, Scientific, institutional and personal rivalries among Soviet geographers in the late Stalin era, *Europe-Asia Studies* 60 (2008) 1397–1418.

²⁵ A. Hettner, *Geografii: ee istoriia, sushchnost' i metody*, Moscow-Leningrad, 1930.

²⁶ For explanation of this concept, see Shaw and Oldfield, Scientific, institutional and personal rivalries (note 24), 1403.

²⁷ A.E. Fersman, *Geografiia na sluzhbu voyny*, *Voprosy Geografii* 128 (1985) 25–30. Fersman's article is cited by L.S. Abramov, *Geografiia voiskam i organizatsiia tyila*, in: *Nauka i uchenye Rossii v gody Velikoi Otechestvennoi voyny, 1941–1945: ocherki, vospominaniia, dokumenty*, Moscow, 1996, 71–88 (71).

resource complexes and with the conditions and possibilities of their speedy and effective use, so necessary in the extreme conditions of wartime. In other words, in Fersman's view, geography was now vital to the Soviet war effort.

According to L.S. Abramov of IGAN, a leading scholar of the activities of the geographers during the war, an unfortunate effect of the discipline's apparently low pre-war status was that many aspects of what might be termed 'military geography' were badly neglected, certainly by comparison with the Axis powers.²⁸ Thus the USSR had possessed no unified military-geographical service and contacts between the military and the geographers were minimal. The teaching of military geography, including the making and interpretation of maps, was a low priority in the military academies. Modern topographical maps were available only for the border regions west of a line between Moscow and Kiev. Indeed, the prevailing military doctrine was that any war would largely be fought on the territory of the enemy. Detailed territorial descriptions of Soviet territory, designed for military use, were mainly economic rather than physical in character and badly dated. Before 1940, when IGAN began work on detailed geographical descriptions of the USSR's potential enemies in eastern and central Europe, the Soviet authorities possessed no such materials. Only at a late stage did SOPS (the Council for the Study of Productive Forces, successor to KEPS) begin to investigate the possibilities of evacuating vital industries and other activities to the east.

Inevitably, then, Soviet geographers emerged to play a significant role during the war years in a number of areas of vital military importance. However, to some degree this work was initially hampered by the large-scale evacuation of academic institutions to the east in 1941 and early 1942.²⁹ Indeed, soon after the Germans launched their wholly unexpected invasion of the USSR on June 22, 1941, it became apparent that the cities of Moscow and Leningrad were in grave danger of capture. In these circumstances, the Soviet authorities quickly took the decision to move their more important scientists to places of safety. Their reasoning was explained by Berg's daughter, Raisa: 'Every one of the cities where evacuated academicians [had] lived turned out to be in a zone near the front. If those cities had been captured by the Germans, the victors would have acquired for their disposal enormous capital in the form of scholars and scientists of all specialities. Evacuation, sometimes forced, was supposed to avert that calamity'.³⁰

Thus a major part of IGAN was evacuated to Alma Ata, capital of Kazakhstan, by the late autumn of 1941, where it established itself on the base of the Kazakh branch of the Academy of Sciences, together with six other Academy of Sciences institutes.³¹ Headed by Grigor'ev, the outpost continued to work closely with colleagues from the Institutes of Soil and Botany and also forged links with local academics.³² Meanwhile, geographers working in institutions located throughout the USSR, when not fighting in the war or finding themselves living in occupied territory, became engaged in

war work of various kinds. The rest of this section will focus on the work of geographers in IGAN as emblematic of the kind of research and military-related activity undertaken in these years.

Doskach and her colleagues have suggested that IGAN's early war work developed in two main directions: firstly, servicing the needs of the front through the generation of military-geographical information, and secondly assisting the extensive mobilization of natural resources on the home front.³³ With regard to the second, IGAN's role particularly related to work done in Kazakhstan and more will be said about this in the section below on the wartime activities of Grigor'ev. But it is also important to mention the involvement of geographers from IGAN, as well as those from Moscow University (MGU) and elsewhere, in two special commissions. The first was the Commission for the Mobilization of the Resources of the Urals, which began its activities in Sverdlovsk (Ekaterinburg) in August 1941 on the basis of pre-war research. This work was soon to be extended into West Siberia and northern Kazakhstan (involving over 800 scientists and other specialists). The second Commission was that for the Mobilization of the Resources of the Volga and Kama regions, which was based on the city of Kazan' and began work in June 1942.³⁴ The aims of both these commissions were essentially similar: to survey the natural and economic resources of these regions with a view to enhancing their contribution to the war effort, to seek out possibilities for the evacuation of populations and economic activities, and to substitute for resources lost to the enemy in the west. In addition, and also in regard to the home front, IGAN was involved elsewhere in the search for minerals and other kinds of resources, and for effective ways of using them, notably in the Komi Republic in the north, in the Caucasus and Siberia.

With regard to the first of IGAN's early wartime activities, namely the generation of military-geographical information, much work was done in Alma Ata but a significant amount was also done by the handful of scientists who remained in Moscow following the evacuation of the main body, with numbers of personnel there rising from a low of 12 to more than 20 by the summer of 1942.³⁵ These geographers worked in close cooperation with the Soviet military and formed an integral element of the newly formed Commission for Geological–Geographical Services to the Red Army, which was established in July 1941 under Fersman's leadership and attached to the Division of Geological–Geographical Sciences of the Academy of Sciences. In addition to personnel from IGAN, this body also integrated scientists from the Institute of Cryopedology and the Commission for Aerial Photography and Engineering Geology.³⁶ More generally, IGAN responded to orders from a range of military departments in order to produce an output which included hundreds of specialist maps.³⁷ Kotliakov and Preobrazhenskii provide a detailed breakdown of the activities of IGAN between 1941 and 1943 drawing from the institute's archives and other materials.³⁸ These included the production of handbooks for the air force as

²⁸ Abramov, *Geografiia voiskam* (note 27), 72–75. However, Smith and Black, and Troll, suggest that pre-war links between geographers and the military in Germany were less close than Abramov suggests. See T.R. Smith and L.D. Black, German geography: war work and present status, *Geographical Review* 36 (1946) 398–408; C. Troll, Geographic science in Germany during the period 1933–1945: a critique and justification, *Annals of the Association of American Geographers* 39 (1949) 99–137.

²⁹ See B.V. Levshin, Rossiiskie nauchnye uchrezhdeniia i uchenye v Velikoi Otechestvennoi voine 1941–1945 godov, in: *Nauka i uchenye* (note 27), 7–23 (9).

³⁰ R.L. Berg, *Acquired Traits: Memoirs of a Geneticist from the Soviet Union*, New York, 1990, 76.

³¹ B.V. Levshin, *Sovetskaiia nauka v gody Velikoi Otechestvennoi voyny*, Moscow, 1983, 42.

³² L.S. Abramov, *Geografiia – dlia pobedy*, *Voprosy Geografii* 128 (1985) 13–24 (22).

³³ A.G. Doskach, A.S. Kes', O.P. Nazarevskii and M.I. Pomus, *Geografiia v uchrezhdeniakh Akademii Nauk SSSR v gody Velikoi Otechestvennoi voyny (1941–1945 gg.)*, *Izvestiia Akademii Nauk SSSR: seriia geograficheskaiia* (1975) no. 3, 5–12 (6).

³⁴ See Levshin, *Rossiiskie* (note 29), 81; Abramov, *Geografiia – dlia pobedy* (note 32), 22.

³⁵ V.M. Kotliakov (Ed), *Institut Geografii Rossiiskoi Akademii Nauk i ego liudi: k 90-letiiu so dnia obrazovaniia*, Moscow, 2008, 19.

³⁶ Abramov, *Geografiia voiskam* (note 27), 78.

³⁷ Kotliakov, *Institut* (note 35), 19–20.

³⁸ V.M. Kotliakov and V.S. Preobrazhenskii, *Akademicheskaiia geografiia – vooruzhennym silam*, *Izvestiia Rossiiskoi Akademii Nauk: seriia geograficheskaiia* (1995) no. 2, 9–21 (15).

well as methodological overviews for interpreting aerial photographs. Specific mention should also be made of the composition of a whole series of maps of trafficability or accessibility with accompanying texts. These were designed to give the military detailed descriptions of the terrain by, or close to, the front and its suitability for various kinds of military operation. Here, the long-standing Russian geographical tradition of landscape science was found to be especially helpful.³⁹ Much of the work was done in Moscow under the direction of I.P. Gerasimov.⁴⁰ The other significant project was the composition of detailed military-topographical descriptions of Soviet territories and also of regions beyond the western frontier. According to Abramov, this work suffered from such shortcomings as lack of data, previous experience and an agreed methodology.⁴¹ Much of it was done by a specialized 'Defence' group of IGAN, firstly in Moscow and then, after evacuation, in Alma Ata. In addition to the geographers, other specialists were also involved, including some from SOPS. General accounts of these military-topographical descriptions lead one to think that they probably had much in common with the UK's wartime Naval Intelligence Handbooks, but unfortunately few if any were printed and they were inaccessible to Abramov in the archives.⁴²

In the course of 1943 and 1944, as the German armies retreated westwards, the Academy of Sciences institutes gradually returned to Moscow and changed in their orientation. Fersman's Commission for Geological–Geographical Services to the Red Army was closed in the second half of 1943 and much of its work transferred to departments of the military. The attentions of geographers in IGAN and elsewhere were now redirected towards issues connected to the rehabilitation of war-ravaged regions.

Lev Berg in wartime

Leningrad, the home of Lev Berg, was a city which in 1940 had contained 146 scientific organizations, including 33 which belonged to the Academy of Sciences network. No less than 39 academicians and 60 corresponding members of the Academy lived and worked there. As German forces approached the city in July 1941, it therefore became the focus of a programme of urgent evacuation. Berg, an important zoologist, ichthyologist, limnologist and geographer and a corresponding member of the Academy, was one of the first scientists to be evacuated.

According to one account, Berg left Leningrad by train on July 22 in a special carriage together with seven academicians and others.⁴³ The train was headed for Borovoe, a health resort and treatment centre for tuberculosis patients in northern Kazakhstan.

Borovoe had apparently long been noted for 'its superb coniferous forests set amidst picturesque mountains, its numerous beautiful lakes, its healing climate', and all 'in the midst of the endless Kazakh steppe',⁴⁴ or, in the words of Raisa Berg, 'one of the most beautiful spots in the world'.⁴⁵ However, life in Borovoe was not necessarily as idyllic as these words may suggest. The 200 or so people from Leningrad, Moscow and other places, crowded together in a single hostel plus some outbuildings, inevitably suffered the wartime deprivations, shortages and frustrations of unwelcome evacuation or exile, even if they were undoubtedly privileged by comparison with those left behind. The social scene also left something to be desired. Thus, although the forced coming together been described as 'an unrepeatable constellation of Russian scholars',⁴⁶ facilitating close interaction, for example, between Berg and his former teacher Vernadskii, the group also included Academician A.N. Bakh, a close ally of Lysenko and one of the signatories of the January 1939 letter to *Pravda* which had resulted in the denial of Berg's election to full membership of the Academy of Sciences.⁴⁷ No doubt some interactions were more welcome to the resort's denizens than others.

Berg appears to have attracted a good deal of respect not only for his single-minded dedication to science but also for his integrity and selflessness. His daughter Raisa, referring to her childhood in the First World War, summarizes his character in the following way: 'My father, a follower of Lev Tolstoy, a pacifist and a vegetarian, wanted to raise children in ignorance of evil. We were supposed to know that the life of a person, an animal or a plant was inviolable. To destroy a plant for the sake of a moment's pleasure was just as reprehensible as torturing an animal'. She goes on to assert that the children were never allowed pets or Christmas trees, were never taken to the zoo, and were forbidden to play with toy soldiers or toy guns in case they 'led us to thoughts of war or murder. We weren't supposed to know that there was a war going on'.⁴⁸ Soon after arriving at Borovoe, Berg was elected by his fellow Academy members to membership of a committee responsible for the distribution of rooms, clothes and other necessities. According to Raisa, this was in consequence of his 'asceticism and readiness to serve people'.⁴⁹ He was noted as a peacemaker and for the fact that his door was always open to those seeking help.⁵⁰ But Berg's character did not necessarily attract universal admiration. Raisa, for example, is extremely critical about her early upbringing under his stern, unbending principles.⁵¹

Since Berg was already 65 years old by the time he arrived in Borovoe, he was of course well beyond the age of military service. Neither does he appear to have been directly involved in militarily-oriented research. Leningrad University had been evacuated to Saratov on the Volga and he was therefore relieved of normal

³⁹ Shaw and Oldfield, Landscape science (note 24).

⁴⁰ Abramov, *Geografiia voiskam* (note 27), 78; see also Dorskach et al., *Geografiia* (note 33), 7. IGAN scientists were also involved in weather forecasting, and produced a particularly significant work on the landscape effects of snow: G.D. Rikhter, *Snezhnyy pokrov, ego formirovanie i svoistva*, Moscow, 1945. It should be noted, as suggested above, that because of the accent on physical geography, Soviet geography developed in close association with other natural sciences like geology, soil science and meteorology, all of which made important advances in this and the subsequent periods.

⁴¹ Abramov, *Geografiia voiskam* (note 27), 79–81.

⁴² For more details about the UK handbooks, see: H. Clout and C. Gosme, The Naval Intelligence Handbooks: A monument in geographical writing, *Progress in Human Geography* 27 (2003) 153–73; D. Matless, J.D. Oldfield and A. Swain, Encountering Soviet geography: oral histories of British geographical studies of the USSR and Eastern Europe 1945–1991, *Social & Cultural Geography* 8 (2007) 352–372.

⁴³ *Nauka i uchenye* (note 27), 24, 27. According to another account, however, Berg left on July 14. See R.L. Zolotnitskaia, L. S. Berg v gody Velikoi Otechestvennoi voyny, *Izvestiia Vsesoiuznogo Geograficheskogo obshchestva* (1970) no. 1, 85–88 (85).

⁴⁴ Zolotnitskaia, L. S. Berg (note 43), 85.

⁴⁵ Berg, *Acquired Traits* (note 30), 75.

⁴⁶ Zolotnitskaia, L. S. Berg (note 43), 85.

⁴⁷ Shaw and Oldfield, Totalitarianism (note 24), 106.

⁴⁸ Berg, *Acquired Traits* (note 30), 2.

⁴⁹ Berg, *Acquired Traits* (note 30), 76.

⁵⁰ Zolotnitskaia, L. S. Berg (note 43), 86–87.

⁵¹ Berg, *Acquired Traits* (note 30), 1–5.

teaching duties, though he does seem to have taught local groups, often at a popular level. One of the most important of his scientific activities, however, derived from his association with the nearby 'Zolotoi Bor' nature reserve, whose scientific council he joined soon after his arrival. As an interesting example of the way that Soviet scientists at this period strove to appear practical, the council, with Berg as secretary, sent the government of Kazakhstan a request in September, 1941 to include the scientists at Borovoe in the nature reserve's research activities, investigating problems 'having current economic significance'. In consequence Berg was personally assigned two research tasks: to investigate the fish resources of the region's lakes with a view to their utilization, and to analyse local meteorological data, collected over many years, with the aim of developing a better understanding of local climate and its significance for human health. As a long-standing student of the climate and lakes of the region, Berg was well placed to undertake such research although, judging by lists of his scientific publications, neither research task bore significant fruit.⁵²

As president of the Geographical Society, Berg held significant responsibilities, but wartime communications proved difficult. The society continued to function, albeit in much diminished form, in the besieged city of Leningrad, providing some military intelligence and geographical advice to those requiring it. The greater part of the premises it occupied, however, was taken over as a military hospital.⁵³ Berg appears to have busied himself at Borovoe with editorial and refereeing duties on behalf of the society in so far as wartime conditions allowed. Most important, however, was his work on the volume dedicated to the society's hundredth anniversary which was due to be celebrated in 1945. The book was eventually published in 1946.⁵⁴

Publishing opportunities were inevitably limited in wartime. Nonetheless, Berg wrote numerous scientific papers and books, many of which were published soon after the war. Most notable were books on the Bering expedition and on the history of Russian geographical discoveries, the third edition of his book on the USSR's natural zones, the second edition of his *Climate and Life*, and the fourth edition of his classic work on the freshwater fish of the USSR and neighbouring countries.⁵⁵

The siege of Leningrad was finally lifted in January 1944 and life in the city slowly began to return to normal. The university returned from its Saratov exile at the end of June, but Berg's arrival was delayed until 29 August when, as he wrote, he returned to the city 'towards the evening of a fine sunny day'.⁵⁶ Within a few days he had resumed his duties as chair of the department of physical geography at the university and as president of the quickly-reviving Geographical Society. Life in the last winter of the war remained harsh, however. But Berg continued to work assiduously and without complaint, even enduring for a time a lack of fuel for his office stove. His final wartime activity was to appear together with senior members of the university, the Party and other organizations at a mass rally held in front of the main university building on

Victory Day, May 9, 1945, reportedly celebrating the occasion with a 'rousing and heartfelt speech'.⁵⁷

Andrei Grigor'ev in wartime

Whilst Berg spent the war years far removed from events on the front, Grigor'ev's position was very different. At 58 he was still active and, as director of the USSR's leading geographical research institute, a body which was set to play a significant wartime role, his responsibilities were heavy. On the fifth day of the war, calling all the institute's staff to a meeting in his office in Moscow, Grigor'ev announced IGAN's inclusion in the new Commission for Geological–Geographical Services to the Red Army under Academician Fersman. Grigor'ev himself was appointed Fersman's deputy, responsible for the provision of all geographical services needed at the front and by the country's wartime economy. There followed a throughgoing reconstruction of the institute's work, which now moved from a traditional focus on systematic branches of the discipline to the fulfilment of specific wartime tasks and the solution of designated problems. This in turn meant the reorganization of the institute's staff into 'complex' groups (or groups containing a range of specialists, depending on the task in hand) and expeditions. These set quickly to work, with Grigor'ev taking an immediate role, supervising the overall direction of the work and closely editing all the maps, texts and other materials produced.⁵⁸

Another difference between Berg and Grigor'ev was that Moscow was not as immediately threatened by German forces as was Leningrad. But life in Moscow soon became difficult, with bombing raids by the Luftwaffe beginning by July 21. For a few months the Academy institutes were able to remain, however, particularly once it became clear that Stalin and the government were not about to flee to Kuibyshev on the Volga, as originally envisaged. In these circumstances Grigor'ev's leadership skills came quickly to the fore. It is interesting to note that, whilst Berg generally seems to have attracted the respect of his colleagues, opinions of Grigor'ev's character were sharply contrasting. On the one hand there were those like his biographer, I.M. Zabelin, and close co-worker, A.G. Dorskach, who admired him for his scientific insight and his leadership qualities during the war.⁵⁹ Thus, Dorskach poses the question whether the conferral of the Fighting Order of the Patriotic War, second class, on Grigor'ev at the end of the war was merely in recognition of his authority and position as director, as some have asserted. As a witness of his active role in the planning and direction of the work of the institute 'to the benefit of the Fatherland', she strongly refutes this idea. 'Simple and natural, precise and business-like, from the very beginning of the war he included the Institute of Geography in the systematic work of according direct assistance to the front and in the discovery and mobilization of the resources of the rear for the country's wartime economy'. Describing the difficulties of working in Moscow in the war's early months with nightly air raids by the Luftwaffe, Dorskach asserts that 'Andrei Aleksandrovich shared the difficulties with everyone and

⁵² Bibliografiia izbrannykh geograficheskikh trudov L. S. Berga, *Voprosy Geografii* 24 (1951) 441–458. See also the bibliography compiled by Berg's widow, M.M. Berg, in: *Pamiat' L. S. Berga: sbornik rabot po geografii i biologii*, Moscow–Leningrad, 1955, 531–559.

⁵³ L.S. Berg, *Sto let Geograficheskogo obshchestva, Trudy Vtorogo s'ezda*, Vol. 1, 71–90 (89); L.S. Berg, *Vsesoiuznoe Geograficheskoe obshchestvo v 1941–43 gg.*, *Izvestiia Vsesoiuznogo Geograficheskogo obshchestva* 75 (1943) no. 6, 44–62.

⁵⁴ L.S. Berg, *Vsesoiuznoe Geograficheskoe obshchestvo za sto let, 1845–1945*, Moscow–Leningrad, 1946.

⁵⁵ L.S. Berg, *Otkrytie Kamchatki i ekspeditsii Beringa, 1725–1742*, 3rd. edition, Moscow–Leningrad, 1946; L.S. Berg, *Ocherki po istorii russkikh geograficheskikh otkrytii*, Moscow–Leningrad, 1946; L.S. Berg, *Geograficheskie zony Sovetskogo Soiuza*, 3rd edition, Moscow, 1947; L.S. Berg, *Klimat i zhizn'*, 2nd edition, Moscow, 1947; L.S. Berg, *Ryby presnykh vod SSSR i sopredel'nykh stran*, part 1, 4th edition, Moscow–Leningrad, 1948.

⁵⁶ Zolotnitskaia, L. S. Berg (note 43), 87.

⁵⁷ Zolotnitskaia, L. S. Berg (note 43), 88.

⁵⁸ A.G. Dorskach, Akademik A. A. Grigor'ev v gody Velikoi Otechestvennoi voiny, *Izvestiia Akademii nauk: seriia geograficheskaiia* (1989) no. 3, 58–64.

⁵⁹ I.M. Zabelin, *Puteshestvie v glub' nauki (Akademik A. A. Grigor'ev)*, Moscow, 1946; Dorskach, Akademik A. A. Grigor'ev (note 58), 59–61.

always seemed cheerful and unwearied. No-one knew when he slept; one could always find him at work in the director's office; it was always possible to go to him for help and advice'. Summing up, Dorskach describes his attitude, including 'his certainty that victory would be ours', as providing 'great moral support' to his colleagues at such a threatening time.

Entirely contrary assessments of Grigor'ev's character were provided by others, however. For example, N.N. Baranskii, the economic geographer at MGU, and K.K. Markov, physical geographer firstly at IGAN and then MGU, were extremely critical of Grigor'ev's scientific and political pretensions and of his domination of the institute. But these criticisms relate mainly to the difficult post-war period.⁶⁰

One of the first demands made of IGAN in the very first days of the war was to make an urgent assessment of alternative regions that might assume the role of the USSR's breadbasket to replace the rich lands of the forest-steppe, and steppe lands of the southern part of the European USSR which were now being occupied by the enemy. Beginning in July, therefore, and continuing into October the institute organized a 'complex Kazakh expedition' under the supervision of Grigor'ev and the economic geographer P.V. Pogorel'skii with the aim of mobilizing the republic's land resources.⁶¹ The first results of the expedition were presented to USSR GOSPLAN and GOSPLAN of the Kazakh SSR before the end of October in the form of maps, and texts. They received a high commendation. It may have been on the basis of this work, and of some pre-war studies, that in October 1941 it was decided to evacuate the greater part of the institute to Kazakhstan as the German armies menaced Moscow. In Kazakhstan, despite the difficulties of maintaining communications with the capital, the geographers could continue their work undisturbed, thus making a valuable contribution to the war effort. According to Dorskach, Grigor'ev had no wish to leave Moscow but was constrained to do so by government order on the night of 15–16 October. He was accompanied by colleagues as well as by academicians and members of other Academy institutes.⁶²

Once established in Alma Ata, Grigor'ev was able to organize the Kazakhstan expedition to achieve two major goals: firstly, to increase the amount of arable land available to both non-irrigated and irrigated agriculture; and, secondly, to evaluate and to make recommendations for increasing the amount and productivity of grazing land not only to provide for the republic's own livestock but also for that evacuated from the war-threatened regions. The institute was tasked with a detailed survey of the republic's agricultural lands, focusing in the first instance on the six north-eastern oblasts (regions) which were those with the best potentials for non-irrigated agriculture. An interesting example of the kind of work produced by these detachments is P.I. Koloskov's text on *The agroclimatological regionalization of Kazakhstan*, published in 1947.⁶³ On the basis of comprehensive fieldwork and also statistical data provided by the republics and local bodies, the author gave a

detailed analysis of climatological (including microclimatological) and agroclimatological factors for the region, including bioclimatic indicators for no less than 41 field cultures. He was then able to subdivide the republic into four agroclimatological zones, obviously a valuable basis for the future agricultural colonization of the region.⁶⁴ In fact, according to some accounts, IGAN's work in northern Kazakhstan during the war provided the basis for Khrushchev's much-publicized Virgin and Idle Lands agricultural campaign in the 1950s, although this fact does not seem to be widely known among Western scholars.⁶⁵ Grigor'ev himself, as well as overseeing the work and output of the expedition in general terms, busied himself on a detailed physico-geographical regionalization of Kazakhstan which gave rise to later publications.⁶⁶

Grigor'ev and IGAN returned to Moscow at the end of 1943 where he continued to supervise the institute's work, including its reorientation towards the revival of the economies and infrastructure of war-damaged cities and regions. Clearly, given the diversity of his activities during the war (not all of which are detailed above), Grigor'ev had only very limited time for his own research. Nevertheless, he was able to undertake a little, notably some theoretical work on his concept of 'the physical-geographical process', and to publish two significant books just after the war's conclusion: his seminal work on the Subarctic, and a centenary volume dedicated to V.V. Dokuchaev and his links with geography.⁶⁷

Aftermath: Soviet geographers and the onset of the Cold War (1945–1953)

It is therefore evident that the particularities of the Soviet Union's war experience provided its geographers with considerable scope to contribute to the war effort. The openness of the Soviet Union's western borders to invasion, the relocation of significant parts of the country's economic production to the east, and the need to trace and evaluate strategic natural resources in order to support the front line, all required major input from geographers. To a large extent, the geographers were successful in rising to this challenge, producing a considerable volume of strategically important data in order both to facilitate military action and to address the considerable strategic issues on the home front. Nevertheless, in spite of this apparent success, the early post-war years were not straightforward for Soviet geography; indeed, by 1948–1950, the discipline's war exploits were sidelined as it came under attack from Party ideologues who questioned geography's overall direction and purpose.

Much of this can be explained by the relatively rapid shift in the status and position of Soviet science more broadly in the years following the ending of the war. This shift was precipitated above all by the breakdown of the wartime alliance with the West and the onset of the Cold War. As documented by Kremontsov,⁶⁸ this led to the emergence of a 'new, strident ideological campaign' in the

⁶⁰ See Shaw and Oldfield, Scientific, institutional and personal rivalries (note 24); also K.K. Markov, *Vospominaniia i razmyshleniia geografa*, Moscow, 1973, 54–55.

⁶¹ Dorskach, Akademik A. A. Grigor'ev (note 58), 62 ff.

⁶² Dorskach, Akademik A. A. Grigor'ev (note 58), 61–62.

⁶³ P.I. Koloskov, *Agroklimaticeskoe raionirovanie Kazakhstana*. 1. Tekst. *Trudy po izucheniiu zemel'nykh fondov Kazakhskoi SSSR*. Pod obshchei redaktsii akad. A. A. Grigor'eva i prof. P. V. Pogorel'skogo, Moscow–Leningrad, 1947.

⁶⁴ N. Bova and N.N. Koloskov, *Agroklimaticeskoe raionirovanie Kazakhstana*, *Izvestiia Akademii Nauk: seriia geograficheskai i geofizicheskai* 12 (1948) no. 6, 567–568.

⁶⁵ Zabelin, *Puteshestvie* (note 59), 62; Dorskach, Akademik A. A. Grigor'ev (note 58), 63. With regard to Western scholars, Martin McCauley, for example, although alluding to the pre-war scientific studies which provided scientific input to the Virgin and Idle Lands campaign, makes no reference to the wartime work of IGAN. Martin McCauley, *Khrushchev and the Development of Soviet Agriculture, 1953–1964*, London, 1976.

⁶⁶ For example: A.A. Grigor'ev, *Prirodnye usloviia Kazakhstana*, Moscow–Leningrad, 1944; A.A. Grigor'ev (Ed), *Kazakhstan: obshchaia fiziko-geograficheskai kharakteristika*, Moscow–Leningrad, 1950.

⁶⁷ A.A. Grigor'ev, *Subarktika. Opyt kharakteristiki osnovnykh tipov fiziko-geograficheskikh sredy*, Moscow–Leningrad, 1946; A.A. Grigor'ev (Ed), V. V. Dokuchaev i *geografiia*. K 100-letiiu ego dnia rozhdeniia, Moscow, 1946.

⁶⁸ Kremontsov, *Stalinist Science* (note 10), 129; also Pollock, *Stalin* (note 10).

immediate post-war period, driven forward by Andrei Zhdanov in order to reassert Party control across society. This shift would end up having a marked influence on Soviet science. Thus, according to von Mohrenschildt,⁶⁹ the Party orchestrated an 'attack' on what were termed 'survivals of capitalism' including 'individualistic tendencies' and 'profiteering' amongst other aberrations.⁷⁰ With specific regard to the scientific community, a key area of concern was the scientists' alleged 'slavish' attachment to Western science and culture, a concern that would effectively undermine the development and maintenance of the USSR's international scientific links.⁷¹ Inevitably the geographers were unable to escape the consequences.

It is instructive to focus on the fate of IGAN during this period. According to Kotliakov, discussions in geography, precipitated to a large extent by the contemporaneous debates within biology over Lysenkoism, quickly transformed themselves into much wider and potentially damaging clashes over the fundamental character of geography and its contribution to society.⁷² A flurry of publications appeared which developed this theme and criticized the current focus of geography within IGAN as well as the leadership role of Grigor'ev (who subsequently lost his position as IGAN's director). Thus there was a re-emergence of the pre-war debate over the character and role of geography in a socialist society, at the centre of which were Berg and Grigor'ev.⁷³ A further development occurred with the publication of an article by A.M. Smirnov in the influential journal *Voprosy Filosofii* [Questions of Philosophy] in 1950 entitled 'The Bases of Geographical Science'.⁷⁴ Smirnov argued that geography's recent achievements had fallen short of expectations because geographical theory had failed to address practical issues in a 'purposeful' manner.⁷⁵ Furthermore, he accused the geographers of basic weaknesses in both theory and methodology and of a continued adherence to 'bourgeois views and opinions'.⁷⁶ In the context of late Stalinism, such denunciations were serious. They pointed to the discipline's theoretical shortcomings (including an implied failure to abide fully by the canons of dialectical materialism) and its inadequate contribution to the reconstruction of socialist society.

In Smirnov's view, geography had an important part to play in facilitating the 'transformation of nature' which had emerged as a central component of Soviet society's construction of communism. At the heart of the transformation of nature rhetoric at this time was the 1948 decree which became known as the Great Stalin Plan for Transformation of Nature.⁷⁷ Although the plan would ultimately be cancelled following the death of Stalin in 1953, it was a massive undertaking. The geographers were destined to have a key role in its implementation because of their collective expertise in areas such as climatology, hydrology and soil science, and in their ability to synthesize complex findings.⁷⁸ It was the uncertainties and

difficulties which the geographers encountered in attempting to contribute to this plan which fuelled the debates of the period.

The crisis in Soviet geography in the post-war period was in effect a continuation of the same issues that stemmed from implementation of Stalin's 'Great Turn' in 1930. The Great Patriotic War of 1941–1945 represented an interlude of crisis of a slightly different kind. The key issue throughout was the extent to which the geographers were able to make practical, scientific contributions to society, and, perhaps more pertinently, to persuade the politicians that they had the skills to do so. Thus, whereas, in Barnes' words, American geography was 'shaped by approaches to war', Soviet geography was shaped through a crisis, of which the Great Patriotic War was only one part.

Conclusion

This paper has been able to provide only a very partial view of the activities of Soviet geographers, and of the two individuals who are the focus of our study, during the Great Patriotic War. Much more research is required before a full picture can be provided. At the same time, reviewing the available sources, one is struck by uncertainties over whether such a full account can in fact ever be given. Perhaps more than any other type of episode in human history, war and accounts of war seem pervaded by emotion and ideology. Thus Soviet and Russian accounts are suffused by patriotic sentiment and nationalist rhetoric. All the participants in the war are bold, determined, and entirely loyal to the Fatherland. Little or no space is allowed for the fears and ambivalences which some individuals must inevitably have felt. Likewise one is struck by the silences in the sources. The Nazi enemy is naturally excoriated for its brutality, including its anti-Semitism. But nothing is said about the brutality of the Stalin regime, including the anti-Semitism which characterized Stalin's latter years. It is a sobering thought that Berg himself might have suffered in consequence of the latter, had he lived longer. Hence a balanced account of the period seems all but impossible. But this is surely true of episodes involving war in every country.

A.E. Fersman argued that the war had promoted the prestige of geography as a major contributor to the war effort.⁷⁹ Ackerman made much the same point with regard to geography in the USA, thus underlining the close connections between geography and war.⁸⁰ It is interesting to note, however, that despite Abramov's claim with respect to the Axis powers, the links between geography and the military seem to have been tenuous in every case in the pre-war period.⁸¹ Only with the outbreak of war did geographers become involved in military intelligence and similar activities, and even then it took several years for them to become fully integrated. Detailed administrative arrangements differed in different

⁶⁹ D. von Mohrenschildt, Postwar Party line of the All-Union Communist Party of the USSR, *Russia Review* 9 (1950) 171–178 (172–174).

⁷⁰ Von Mohrenschildt, Postwar (note 69), 174–175.

⁷¹ Kremontsov, *Stalinist Science* (note 10), 129–183.

⁷² Kotliakov, *Institut* (note 35), 20–22.

⁷³ Shaw and Oldfield, Scientific, institutional and personal rivalries (note 24), 1397–1418 (1413–1415).

⁷⁴ A.M. Smirnov, Ob osnovakh geograficheskoi nauki, *Voprosy Filosofii* 2 (1950) 83–103.

⁷⁵ Smirnov, Ob osnovakh (note 74), 83–84.

⁷⁶ Smirnov, Ob osnovakh (note 74), 84.

⁷⁷ See *Pravda* and *Izvestiia*, 24 October, 1948.

⁷⁸ For a discussion of the way in which those geographers working in the area of climate and climate modification responded to the changed socio-political environment post-1945, see J.D. Oldfield, Climate modification and climate change debates amongst Soviet physical geographers, 1940s–1960s, *WIREs Climate Change* (2013). <http://dx.doi.org/10.1002/wcc.242>.

⁷⁹ Abramov, *Geografiia voiskam* (note 27), 71.

⁸⁰ Ackerman, *Geographic training* (note 3), 121.

⁸¹ See Abramov, *Geografiia voiskam* (note 27), 72–75; Ackerman, *Geographic training* (note 3), 121 ff. For Germany, see Smith and Black, *German geography* (note 28); Troll, *Geographic science* (note 28). For the UK, see W. Balchin, United Kingdom geographers in the Second World War: a report, *Transactions of the Institute of British Geographers* 8 (1983) 14–26.

countries and need not detain us. But it is an important comment on the skills which the geographers were able to bring to military problems (or were not able to bring, as detailed by Ackerman and Barnes for the US, though there is no such parallel commentary for the USSR) that in all cases geographers became involved in similar work: map analysis; the production of new kinds of maps for military use; terrain, marine and hydrographic analysis; meteorological studies; the production of intelligence handbooks for both the home and foreign fronts, and so on. It took several years for geographers to adjust to the demands of wartime but some important scientific advances were made as a result. The longer-term implications for geography in the US have been examined by Barnes in some detail, but unfortunately no such studies exist for the USSR. This is more the pity as the USSR does provide some cases of wartime experiences which were unique in the European context, notably the geographers' engagement with resource mobilization in some of the remoter regions of the country, and the evacuation of key scientists to places hundreds or even thousands of miles behind the front. Soviet geographers therefore had opportunities for furthering their research which were not easily paralleled elsewhere on the continent.

Ethan Pollock has argued that, under Stalin, 'science for science's sake was not good enough; all science had to play a role in socialist construction'.⁸² A weak, descriptive geography, irrelevant to the issue of nature transformation, was unlikely to survive after Stalin's

'Great Turn' at the beginning of the 1930s. Thereafter Soviet geographers needed to strive for scientific rigour, even if they did not always attain it. The situation was thus very different from that in the USA where, in Barnes' words, 'approaches to geography were shaped by war'. In the USSR, it was the Stalin era as a whole, rather than the Great Patriotic War only, that was crucial to the emerging character of the discipline. Indeed, what is perhaps remarkable is that the ideological and scientific cleavages and tensions between the geographers came to the fore in the 1930s and with the onset of the Cold War rather than during the war itself. These cleavages helped shape the character of Soviet geography for the future and were at least as significant in this regard as the war itself. The effects of the war, in other words, varied from country to country. Perhaps even more profoundly, the actual experience of war almost certainly varied from geographer to geographer.

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⁸² Pollock, *Stalin* (note 10), 59.